

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1.(currently amended) ~~Nozzle~~ A nozzle for spraying a liquid into the atmosphere, ~~characterised in that it comprises~~ comprising:

[[-]] a secondary jet ~~(102)~~ connected to means ~~(200)~~ for supplying said liquid and including means ~~(1)~~ for effecting a first ~~fractional distillation~~ fractionation of said liquid and an expansion chamber ~~(2)~~ in which the liquid that has been submitted to said first fractionation is introduced;

[[-]] a principal jet ~~(101)~~ connected to means for generating a gaseous flow ~~(300)~~, including means ~~(3)~~ for effecting a second ~~fractional distillation~~ fractionation of said liquid and an outlet orifice ~~(4)~~ to the atmosphere in which fluid which has been submitted to said second fractionation is introduced; and

- means ~~(5)~~ for connecting said secondary jet to said principal jet, by connecting the expansion chamber ~~(2)~~ and the means ~~(3)~~ for effecting the second ~~fractional distillation~~ fractionation of said liquid, creating therefore a mixed gas-and-liquid fluid.

2. (currently amended) ~~Spray~~ The spray nozzle according to claim 1, ~~characterised in that wherein~~ the secondary jet ~~(102)~~ is in the form of a cylinder, ~~the~~ a central portion of ~~which~~ said cylinder is occupied by the principal jet ~~(101)~~, which also has a cylindrical configuration, ~~the~~ an annular cross-sectional space created thereby forming the expansion chamber ~~(2)~~.

3. (currently amended) ~~Spray~~ The spray nozzle according to claim 1, ~~characterised in that wherein~~ the first and second fractional distillation means ~~(1, 3)~~ comprise a first and second Venturi, ~~(6, 7)~~ respectively.

4. (currently amended) ~~Spray~~ The spray nozzle according to claim 3, ~~characterised in that wherein~~ the first Venturi ~~(6)~~ comprises a tapering part ~~(8)~~ followed by a calibrated cylindrical portion ~~(9)~~ terminating in the expansion chamber ~~(2)~~.

5. (currently amended) ~~Spray~~ The spray nozzle according to claim 4, ~~characterised in that wherein~~ the tapering part ~~(8)~~ is in the form of a truncated cone, which is adapted to the calibrated cylindrical portion ~~(9)~~ through ~~the~~ an intermediary of a bearing ~~(27)~~ so that ~~the~~ a reduction in cross-section between the supply conduit ~~(203)~~ and the calibrated cylindrical portion ~~(9)~~ is discontinuous.

6. (currently amended) ~~Spray~~ The spray nozzle according to claim 4, ~~characterised in that~~ wherein the calibrated cylindrical portion ~~(9)~~ terminates in the expansion chamber ~~(2)~~ in a recessed manner relative to ~~the~~ a wall of said expansion chamber.

7. (currently amended) ~~Spray~~ The spray nozzle according to claim 3, ~~characterised in that~~ wherein the second Venturi ~~(7)~~ includes a tapering part ~~(10)~~ followed by a cylindrical portion ~~(11)~~ terminating in the atmosphere through the outlet orifice ~~(4)~~.

8. (currently amended) ~~Spray~~ The spray nozzle according to claim ~~[[1]]~~7, ~~characterised in that~~ wherein the means ~~(5)~~ for ~~connection~~ connecting the secondary jet ~~(102)~~ to the principal jet ~~(101)~~ comprise a plurality of conduits ~~(12)~~ disposed radially between the expansion chamber ~~(2)~~ and the cylindrical portion ~~(11)~~ of the second Venturi.

9. (currently amended) ~~Spray~~ The spray nozzle according to claim 1, ~~characterised in that~~ wherein the expansion chamber ~~(2)~~ has sudden variations in thickness along ~~the~~ a longitudinal axis.

10. (currently amended) ~~Spray~~ The spray nozzle according to claim ~~[[9]]~~ 8, ~~characterised in that wherein~~ the expansion chamber ~~(2)~~ has ~~the~~ a smallest thickness in ~~the~~ a vicinity of the ~~connection~~ plurality of conduits ~~(12)~~.

11. (currently amended) ~~Spray~~ The spray nozzle according to claim 1, ~~characterised in that it additionally comprises~~ further comprising means ~~(20)~~ for effecting a third ~~fractional distillation~~ fractionation of said liquid.

12. (currently amended) ~~Spray~~ The spray nozzle according to claim 11, ~~characterised in that wherein~~ said third ~~fractional distillation~~ fractionation means comprise an ultrasonic resonator ~~(21)~~ and a resonance chamber ~~(22)~~ connected to the outlet orifice in ~~the~~ an axis of the principal jet.

13. (currently amended) ~~Spray~~ The spray nozzle according to claim 1, ~~characterised in that wherein~~ said first ~~fractional distillation~~ fractionation means ~~(1)~~ for said liquid comprise two first Venturi ~~(6, 6')~~ terminating in the expansion chamber ~~(2)~~.

14. (currently amended) ~~Spray~~ The spray nozzle according to claim 13, ~~characterised in that wherein~~ said two first ~~two~~ Venturi ~~(6, 6')~~ each comprise a tapering part ~~(8, 8')~~

followed by a calibrated cylindrical portion ~~(9, 9')~~, said calibrated cylindrical portion having a different diameter for each said two first Venturi.

15. (currently amended) ~~Apparatus~~ An apparatus for spraying a liquid into the atmosphere, ~~characterised in that it comprises~~ comprising:

~~- a spray nozzle (100) claim 1;~~

~~[[-]] means (300) for supplying gas under pressure, said means being connected to the principal jet (101);~~

~~- means (200) for supplying liquid, said means including a reservoir (201) containing said liquid[[,]] and an the orifice (202) of which is connected to the secondary jet (102); and~~

a spray nozzle for spraying a liquid into the atmosphere, comprising a secondary jet connected to the orifice of said means for supplying said liquid, and including means for effecting a first fractionation of said liquid and an expansion chamber in which the liquid that has been submitted to said first fractionation is introduced; a principal jet connected to said means for supplying gas under pressure, including means for effecting a second fractionation of said liquid and an outlet orifice to the atmosphere in which fluid which has been submitted to said second fractionation is introduced; and means for connecting said secondary jet to said principal jet, by

connecting the expansion chamber and the means for effecting the second fractionation of said liquid, creating therefore a mixed gas-and-liquid fluid; and

[[-]] means ~~(400)~~ for checking and regulating ~~the~~ fluids in the apparatus.

16. (currently amended) ~~Apparatus~~ The apparatus according to claim 15, ~~characterised in that~~ wherein the reservoir ~~(201)~~ is placed at a level such that the orifice ~~(202)~~ of said reservoir is lower than the spray nozzle ~~(100)~~.

17. (currently amended) ~~Method~~ A method of spraying a liquid into the atmosphere, said method comprising steps ~~which consist of:~~

[[-]] effecting a first ~~fractional—distillation~~ fractionation of said liquid by suction through a conduit ~~(203, 204)~~, which has a first Venturi ~~(6, 6')~~ terminating in an expansion chamber ~~(2)~~ which is subjected to a negative pressure; and

- effecting a second ~~fractional—distillation~~ fractionation of ~~said the~~ liquid from the first fractionation by suction through means ~~(5)~~ for ~~connection~~ connecting the expansion chamber ~~(2)~~ to a second Venturi ~~(7)~~ which is supplied by a ~~gaseous flow~~ gas under pressure,

wherein said liquid from said first fractionation is mixed with the gas creating therefore a mixed gas-and-liquid and which terminates in a low pressure area of an outlet orifice.

18. (currently amended) ~~Method~~ The method according to claim 17, ~~characterised in that the~~ wherein a gas supply pressure of the second Venturi ~~(7)~~ is regulated so that ~~the~~ a pressure prevailing at ~~the~~ an outlet ~~(4)~~ of said second Venturi is lower than ~~the~~ a pressure prevailing in the expansion chamber ~~(2)~~.

19. (currently amended) ~~Method~~ The method of spraying according to claim 18, ~~characterised in that~~ wherein the first and second ~~fractional distillations~~ fractionations are effected by means of a spray nozzle, and

~~the~~ a pressure of the gaseous flow in ~~the~~ a principal jet ~~(101)~~ of said spray nozzle is between 2.5 bars and 3.5 bars, and

~~the~~ a diameter of ~~the~~ a calibrated cylindrical portion ~~(9)~~ of the first Venturi ~~(6)~~ is between 0.3 mm and 1 mm, permitting a delivery of liquid of between 15 ml/min and 40 ml/min.

20. (currently amended) ~~Method~~ The method of spraying according to claim 17, ~~characterised in that it additionally comprises~~ further comprising a step ~~consisting~~ of effecting a

third ~~fractional distillation~~ fractionation of the liquid by ultrasonic resonance.

21. (currently amended) ~~Use of a~~ The spray nozzle according to claim 1, configured for disinfecting premises used for medical, paramedical or food-processing purposes.

22. (new) The spray nozzle according to claim 7, wherein the means for connecting the secondary jet to the principal jet comprise one conduit disposed between the expansion chamber and the cylindrical portion of the second Venturi.